



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 696 911 B1

(12)

## EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention  
of the grant of the patent:  
29.01.1997 Bulletin 1997/05

(51) Int. Cl.<sup>6</sup>: A61F 13/66  
// A61F13/62, A41F9/00

(21) Application number: 94915728.3

(86) International application number:  
PCT/SE94/00414

(22) Date of filing: 06.05.1994

(87) International publication number:  
WO 94/26224 (24.11.1994 Gazette 1994/26)

### (54) ATTACHMENT MEANS FOR A BELT

BEFESTIGUNGSMITTEL FÜR GÜRTEL

DISPOSITIF DE FIXATION POUR CEINTURE

(84) Designated Contracting States:  
AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE

• CARLBARK, Olle  
S-430 50 Kallered (SE)  
• LARSSON, Björn  
S-427 50 Billdal (SE)

(30) Priority: 12.05.1993 SE 9301631

(74) Representative: Harrison, Michael Charles  
Albihns GmbH,  
Grasserstrasse 10  
80339 München (DE)

(43) Date of publication of application:  
21.02.1996 Bulletin 1996/08

(56) References cited:  
FR-A- 2 586 558

(73) Proprietor: MÖlnlycke AB  
405 03 Göteborg (SE)

(72) Inventors:  
• RÖNNBERG, Peter  
S-431 33 Mölndal (SE)

EP 0 696 911 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

**Description****Field of the Invention**

The invention relates to a belt of the type used with an absorbent garment and, in particular, to a waist belt of flexible material comprising attachment means securely attached to the belt and located proximate one of the ends of said belt for securing said one end to an outer surface of said belt situated between the longitudinal edges thereof, said attachment means being of the hook element strip releasable type, and wherein said attachment means itself extends with its greatest dimension in the width direction of the belt.

**Background to the Invention**

The type of belt in question can be integrated with an absorbent garment worn to assist in the collection of bodily discharges, particularly for persons suffering from incontinence, or the belt can be a separate belt to which an absorbent garment portion is attached by some means of releasable attachment such as hook and loop (also called touch and close) type fastening means, for instance such as sold under the name "VELCRO".

The belt of the separate type can be either a disposable belt, for limited use with a small number of absorbent chassis garments and thus requiring no particular cleaning, or a more permanent type which may be washed many times before its effectiveness or appearance warrants a change to a new belt.

Absorbent garments of the above mentioned type are well known in the art.

WO-A-91/08725 discloses an example of both these types in conjunction with an absorbent garment.

One of the problems recognised with such belts is achieving maximum comfort for the user by correct fitting, since incorrect fitting will result in sore, cut and/or painful areas for the user.

One area where it has been found desirable to increase comfort is the area of the belt attachment to itself. When one examines WO-A-91/08725 for example, it is clear that the attachment of the hook element strip and the loop element strip together for fastening the belt can easily result in one of the edges of the hook strip projecting beyond the zone to which it is intended to be attached and, as a result, contacting the body. This contact with the body is particularly uncomfortable.

Where the problem of incontinence is involved, it will be appreciated that persons suffering from this problem are often old and have physical handicaps of various types. As a consequence, they often require the assistance of personnel for fitting the belts or garments with integrated belts. If they, or the assistant personnel do not fasten the belt with great care, the hook element strips can easily be left in a position which makes them contact the body. This factor is particularly important for the case where the users are unable to assist them-

selves or otherwise unable to communicate the poor fitment to the assistant personnel.

It is also known from GB-A-2 232 337 to use longitudinal strips for belt fastening, whereby the strip is placed lengthways along the length of the belt portion. In this way, the risk of the hook element strip contacting the body above or below the longitudinal edges of the belt portion is reduced. The extent of the strip in the longitudinal direction of the belt portion is consequently considerable in order to be able to achieve adequate shear strength of the releasable fastener. This brings with it however the disadvantage that the strips may not properly overlap and will thus contact the wearer's body although at a different location. Such is of particular importance where the belt is slightly too small for example.

Arrangement of the elongate strip of hook elements along the width of the belt is known per se from FR-A-2 586 558, where a small margin between the edges of the strip and the outer edges of the belt is left. However, the size of such margin was not of importance to the inventors thereof and was thus nowhere considered. This prior art forms the preamble of independent claim 1.

**Summary of the Invention**

The aforementioned problems relating to fitting and comfort when wearing absorbent garments of the aforementioned type are solved by the features of the belt according to claim 1.

Preferred features of the belt are defined in the dependent claims.

It should be noted that, whilst the term "absorbent garment" has been used in conjunction with incontinence, and particularly adult incontinence, the invention is not limited to this particular use or any particular size or particular type of absorbent garment implied thereby and it is clear for the skilled man that such belts could be used with baby's or children's nappies (diapers) for example, merely by adapting the dimensions and materials appropriately.

**Brief Description of the Drawings**

The invention will now be explained in more detail with reference to certain non-limiting embodiments and with reference to the accompanying drawings, in which

50 Fig. 1 depicts one embodiment of a separate belt in accordance with the invention whereby, for purposes of clarity, the belt is shown looped in the opposite manner to that obtained upon wearing;

55 Fig. 2 depicts a further embodiment of a separate belt according to the invention wherein the belt is of the reversible type, capable of being used either way round;

Fig. 3 shows an absorbent garment in the form of a chassis, adapted for fitting to the belt of the invention;

Fig. 4 shows a belt according to the invention laid out flat;

Fig. 5 shows a plan view of a reversible belt similar to that in Fig. 2;

Fig. 6 shows three possible embodiments, in Figs 6(A), 6(B) and 6(C) of elongate hook element strips of the belt of the present invention, and

Fig. 7 shows an embodiment of an absorbent garment having an integrated belt in accordance with the invention.

Detailed description of preferred embodiments

Fig. 1 shows a belt generally denoted 1 which is made of flexible material such that it can be wrapped around a user's waist. The belt in Fig. 1 is shown, for reasons of clarity, wrapped around an imaginary centre point in a manner opposite to that normally used when fitted to a user. Thus the inside of the belt 8 is here shown as if it were on the outside.

The belt is substantially rectangular in shape comprising two laterally spaced longitudinal edges 3 and 4 separated by a distance  $z$  (see Fig. 4). At one end, the belt is foreseen with an end portion 13 here shown as having a reduced width, on which end portion is securely affixed a flexible strip 6 having hook elements. This strip is of the type forming one half of the joining portions of a hook and loop type fastening means. The loop part of the joint in the embodiment shown is thus formed by the belt material itself.

The outside of the belt 5 (depicted in Fig. 1 as the inside) serves as an area of releasable attachment, partly for the strip 6 located at one end of the belt and also for similar strips 6' and 6" of a chassis 2 having absorbent material 14 therein (see Fig. 2).

On the outside surface 5 of the belt 1 there may also be a portion 7, formed by attaching a strip of suitable material to the outside surface 5 of the belt, to which the hook element strips 6' and 6" cannot attach.

The manner of fitting a chassis 2 to the separate belt 1 will now be briefly described. Firstly the belt is passed around the wearer's waist and the hook element strip 6 is pressed lightly onto the releasable attachment surface 5 to fasten it in place. The chassis portion is then attached to the outside of the belt behind the wearer's back by attaching the two strips 6' (or alternatively strips 6") to the belt surface 5. The free end of the garment is then passed between the wearer's legs and secured by means of the strips 6" to the front of the belt.

The manner of fitting the garment shown in Fig. 7 having an integrated belt is the same as above, except that no attachment of any strips 6" is required.

In pressing the hook element strip 6 lightly into place, without the belt of the invention, it is easy not to take adequate care in preventing that the hook element strips project beyond the edges of the belt and thus touch the wearer. However, by using the belt of the invention this problem is obviated. Thus the strip 6 in Fig. 1 has a longitudinal extent "a" across the width of the belt which is between 25% and 75% of the width "z" thereof, preferably less than 60% and more preferably less than 50%.

A further embodiment of the invention is shown in Fig. 2 and Fig. 5 which each show a reversible belt. Corresponding zones 5 and 12 are provided for releasable attachment on either side with or without a zone 7 on either or both sides. At one end of the belt there is attached an extra piece 20 of flexible material, which has attached thereto two strips 21 and 22 of hook elements, similar to the element 6 of Fig. 1. Depending on which way round the belt is worn, either one or the other hook element strip 21 or 22 can be used for fastening the belt. Thus each of the two strips has a length of between 25% and 75% of the belt width "z".

Clearly advantageous with the use of such belts of the single sided type or the type which are integrated into an absorbent garment (see e.g. Fig. 7) is where at least some of the inner surface material of the belt is moisture-absorbent.

A woven material is normally used for both sides of a separate re-usable belt, or the outside of a disposable belt (integrated or not) due to its releasable attachability characteristics for hook element strips and also due to its washability.

However non-woven, cheaper materials for the outside of the belt can be used with a hook element strip attachable to non-woven materials.

In particular, when using non-woven materials for the releasable attachment surface of the belt it is possible to achieve particularly favourable peel strength and shear strength combinations, which give a peel strength of  $0.1 - 2.0 \text{ Ncm}^{-1}$ , preferably down to as low as  $0.2 - 0.8 \text{ Ncm}^{-1}$ , and a shear strength greater than  $1 \text{ Ncm}^{-2}$ , preferably greater than  $15 \text{ Ncm}^{-2}$  and normally greater than  $20 \text{ Ncm}^{-2}$ . In this way, the strip of material can be made very thin and also with its largest dimension closer to 50% or even less of the belt width.

As can be seen from Fig. 6, showing three possible strip embodiments 9, 10, and 11, the extent "a" between the outer edges of the strip(s) leaves a distance or margin "b" from each edge 3, 4 of the belt. The larger the distance "b", the less the risk that the strip portions 9, 10, or 11, will touch the wearer when the belt is fitted slightly incorrectly.

As can be seen, the strips are generally elongate, or in the case of a series of strips 10 as in Fig. 6(B), the series of strips is elongate. By elongate is meant that the dimension "a" is larger than dimension "c". Preferably a ratio of a:c greater than 2:1 is used and even more preferably a ratio of over 3:1. Thus, to achieve the aforementioned advantages, the strips with their larger

dimension "a" are laid across the belt width (z), as depicted, to give the strips a dimension such that the larger dimension "a" has a length of between 25 % and 75 % of the width (z) of the main area (5) of the belt, which width (z) for adult incontinence applications lies between 70 to 160 mm. By width of the belt, is hereby meant the width of the belt at the zone where the strip 9, 10, 11 will attach. Thus in the embodiment of Fig. 6(C), although the strip 11 extends entirely across the reduced portion of the belt, the strip length "a" still lies within the stated range of values.

Whilst the embodiment of Fig 6(B) shows three strips sections 10, it is clear that two or more than three could be used. However, it is the distance "a" between the outer edges of the outermost strips that is the dimension which must fall within the range 25% to 75%, preferably being less than 60%, or more preferably less than 50%.

As will be noted, the strips or series of strips are placed substantially in the middle of the belt width, such that the two margins "b" are substantially equal for any given belt.

The area denoted by "d" in Fig. 6(A) is a finger-grip portion of the end of the belt for unfastening the belt by simple lifting and consequent peeling of the hook element strip from where it is attached to the belt. By use of a thin strip, as described above and which has low peel strength, it is possible to reduce distance "d" to an absolute minimum, thus saving belt material and reducing cost.

Whilst particular embodiments of the invention have been described above, it is to be understood that these do not limit the scope of the invention which is defined by the claims appended hereto.

### Claims

1. Waist belt (1) of flexible material comprising attachment means (6; 9; 10; 11; 21; 22) securely attached to the belt and located proximate one of the ends of said belt for securing said one end to an outer surface of said belt situated between the longitudinal edges (3, 4) thereof, said attachment means being of the hook element strip releasable type, and wherein said attachment means itself extends with its greatest dimension (a) in the width direction of the belt, characterized in that said longitudinal extent (a) of said attachment means is in the range of 25% to 75% of the width (z) of said belt taken at the location of the outer surface of said belt at which said one end is to be attached.
2. Waist belt according to claim 1, characterized in that said belt (1) is integrated into an absorbent garment and thus exhibits two belt ends (16, 17) extending outwardly from the sides of said absorbent garment, one (16) of which has said hook element strip (6).
3. Waist belt according to claim 1 or 2, characterized in that said belt has a width (z) lying in the range of 70 to 160 mm.
4. Waist belt according to any preceding claim, characterized in that said attachment means (10) is divided, in its longitudinal direction across the belt width, into a series of two or more separate strips, said longitudinal extent (a) of said series being defined by the outer edges of the strips closest to the edges (3, 4) of the belt (1).
5. Waist belt according to any preceding claim, characterized in that the end portion (13) of the belt on which the attachment means is located has a width which lies between 40% to 80%, preferably 60%, of the width (z) of the belt.
6. Waist belt according to any preceding claim, characterized in that said longitudinal extent (a) of the strip is less than 60% and preferably less than 50% of the belt width (z).
7. Waist belt according to any preceding claim, characterized in that the longitudinal extent (a) of the attachment means (6; 9; 10; 11; 21; 22) in the width direction of the belt is more than 2 times, preferably more than 3 times, the lateral extent (c) of said attachment means in the longitudinal direction of the belt.
8. Waist belt according to any preceding claim, characterized in that the outer surface (5) of the belt to which the attachment means releasably attaches, consists of a non-woven material, and that at least a part of the material on the inner surface of the belt is moisture-absorbent.
9. Waist belt according to any preceding claim, characterized in that both the surfaces (5, 12) of the belt consists of a non-woven material.
10. Waist belt according to claim 8, characterized in that the attachment means (6, 9, 10, 11, 21, 22) when attached to said non-woven material has a peel strength of between  $0.1 - 2.0 \text{ Ncm}^{-1}$ , preferably  $0.2$  and  $0.8 \text{ Ncm}^{-1}$ , and a shear strength of greater than  $1 \text{ Ncm}^{-2}$ , though preferably greater than  $15 \text{ Ncm}^{-2}$ .
11. Waist belt according to any preceding claim, characterized in that the belt has substantially parallel side edges (3, 4) along the major proportion of its length and in that the hook element strip(s) extend over the central portion of the belt width.

### Patentansprüche

1. Hüftgurtel (1) aus flexilem Material mit Anbringmit-

teln (6; 9; 10; 11; 21; 22), die fest an dem Gürtel angebracht und in der Nähe eines der Enden des Gürtels zum Befestigen des einen Endes an einer Außenfläche des Gürtels angeordnet sind, die sich zwischen den Längsrändern (3, 4) dessen befindet, wobei das Anbringmittel in der lösbar Art eines Streifens mit Hakenelementen ausgebildet ist, und wobei sich das Anbringmittel mit seiner größten Abmessung (a) in der Breitenrichtung des Gürtels erstreckt,  
 dadurch gekennzeichnet, daß die Längsausdehnung (a) des Anbringmittels im Bereich von 25% bis 75% der Breite (z) des Gürtels liegt, wobei die Breite des Gürtels an der Stelle der Außenfläche des Gürtels genommen wird, an der das eine Ende angebracht werden soll.

2. Hüftgürtel nach Anspruch 1, dadurch gekennzeichnet, daß der Gürtel (1) in ein aufsaugendes Kleidungsstück integriert ist und somit zwei Gürtelenden (16, 17) aufweist, die sich von den Seiten des aufsaugenden Kleidungsstücks nach außen erstrecken, von denen eines (16) den Streifen (6) mit den Hakenelementen aufweist.

3. Hüftgürtel nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß der Gürtel eine Breite (z) aufweist, die im Bereich von 70 bis 160 mm liegt.

4. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß das Anbringmittel (10) in seiner Längsrichtung über die Gürtelbreite in eine Reihe von zwei oder mehr getrennten Streifen geteilt ist, wobei die Längsausdehnung (a) der Reihe durch die Außenränder der Streifen definiert wird, die am nächsten zu den Rändern (3, 4) des Gürtels (1) liegen.

5. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der Endabschnitt (13) des Gürtels, an dem das Anbringmittel angeordnet ist, eine Breite aufweist, die zwischen 40% und 80%, vorzugsweise 60% der Breite (z) des Gürtels liegt.

6. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Längsausdehnung (a) des Streifens geringer als 60% und vorzugsweise geringer als 50% der Gürtelbreite (z) ist.

7. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Längsausdehnung (a) des Anbringmittels (6; 9; 10; 11; 21; 22) in der Breitenrichtung des Gürtels mehr als zweimal, vorzugsweise mehr als dreimal, die seitliche Ausdehnung (c) des Anbringmittels in der Längsrichtung des Gürtels beträgt.

5. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die Außenfläche (5) des Gürtels, an die das Anbringmittel lösbar angebracht wird, aus nicht gewebtem Material besteht, und daß wenigstens ein Teil des Materials an der Innenfläche des Gürtels feuchtigkeitsaufsaugend ausgebildet ist.

10. Hüftgürtel nach zumindest einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß beide Oberflächen (5, 12) des Gürtels aus nicht gewebtem Material bestehen.

15. Hüftgürtel nach Anspruch 8, dadurch gekennzeichnet, daß das Anbringmittel (6, 9, 10, 11, 21, 22), wenn es an das nicht gewebte Material angebracht ist, einen Abziehwiderstand von zwischen 0,1 bis 2,0 Ncm<sup>-1</sup>, vorzugsweise 0,2 und 0,8 Ncm<sup>-1</sup>, und eine Scherfestigkeit aufweist, die größer als 1 Ncm<sup>-2</sup>, und vorzugsweise größer als 15 Ncm<sup>-2</sup> ist.

20. Hüftgürtel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der Gürtel in wesentlichen parallele Seitenränder (3, 4) entlang des wesentlichen Teiles seiner Länge aufweist, und daß sich der oder die Streifen mit Hakenelementen über den mittleren Abschnitt der Gürtelbreite erstrecken.

25. Revendications

1. Ceinture (1) en matériau souple, comprenant un moyen de fixation (6; 9; 10; 11; 21; 22) solidement fixé à la ceinture et situé à proximité de l'une des extrémités de ladite ceinture pour solidariser ladite première extrémité et une surface extérieure de ladite ceinture située entre les bords longitudinaux (3, 4) de cette dernière, ledit moyen de fixation étant du type bande amovible à éléments formant crochets et ledit moyen de fixation s'étendant avec sa plus grande dimension (a) dans le sens de la largeur de la ceinture, caractérisée en ce que ladite étendue longitudinale (a) dudit moyen de fixation vaut de 25 à 75% de la largeur (z) de ladite ceinture considérée à l'emplacement de la surface extérieure de ladite ceinture où doit être fixée ladite première extrémité.

30. 2. Ceinture selon la revendication 1, caractérisée en ce que ladite ceinture (1) est intégrée à un vêtement absorbant et présente donc deux extrémités (16, 17) qui s'étendent vers l'extérieur depuis les côtés dudit vêtement absorbant, l'une (16) de ces extrémités portant ladite bande (6) à éléments formant crochets.

35. 3. Ceinture selon la revendication 1 ou 2, caractérisée en ce que ladite ceinture a une largeur (z) comprise entre 70 et 160 mm.

4. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que ledit moyen de fixation (10) est divisé, dans sa direction longitudinale transversale à la largeur de la ceinture, en une série de deux ou plusieurs bandes séparées, ladite étendue longitudinale (a) de ladite série étant définie par les bords extérieurs des bandes les plus proches des bords (3, 4) de la ceinture. 5

5. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que la partie d'extrémité (13) de la ceinture où se trouve le moyen de fixation a une largeur qui vaut entre 40 et 80%, et de préférence 60%, de la largeur (z) de la ceinture. 10 15

6. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que ladite étendue longitudinale (a) de la bande est inférieure à 60%, et de préférence inférieure à 50%, de la largeur (z) de la ceinture. 20

7. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que l'étendue longitudinale (a) du moyen de fixation (6; 9; 10; 11; 21; 22) dans la direction de la largeur de la ceinture est plus du double, et de préférence plus du triple, de l'étendue latérale (c) dudit moyen de fixation dans la direction longitudinale de la ceinture. 25 30

8. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que la surface extérieure (5) de la ceinture à laquelle le moyen de fixation se fixe de façon amovible est faite d'un matériau non tissé et en ce qu'une partie au moins du matériau se trouvant sur la surface intérieure de la ceinture absorbe l'humidité. 35

9. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que les deux surfaces (5, 12) de la ceinture sont faites d'un matériau non tissé. 40

10. Ceinture selon la revendication 8, caractérisée en ce que le moyen de fixation (6; 9; 10; 11; 21; 22) a, lorsqu'il est fixé audit matériau non tissé, une résistance au décollement comprise entre 0,1 et 2,0  $\text{Ncm}^{-1}$ , et de préférence entre 0,2 et 0,8  $\text{Ncm}^{-1}$ , et une résistance à la déchirure supérieure à 1  $\text{Ncm}^{-1}$ , bien que celle-ci soit de préférence supérieure à 15  $\text{Ncm}^{-1}$ . 45 50

11. Ceinture selon l'une quelconque des précédentes revendications, caractérisée en ce que la ceinture a des bords latéraux (3, 4) sensiblement parallèles sur la majeure partie de sa longueur et en ce que la ou les bande(s) à éléments formant crochets s'étend(ent) sur la partie centrale de la largeur de la ceinture. 55

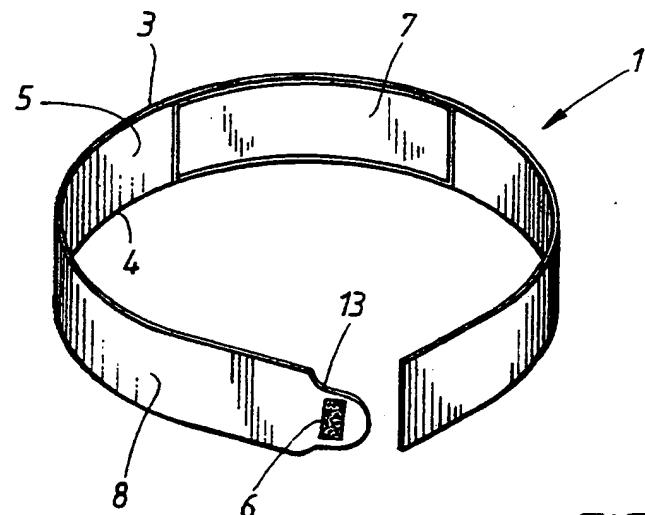


FIG. 1

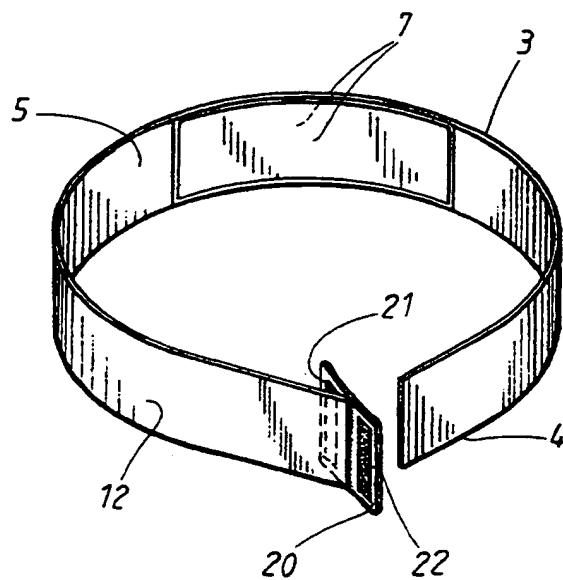
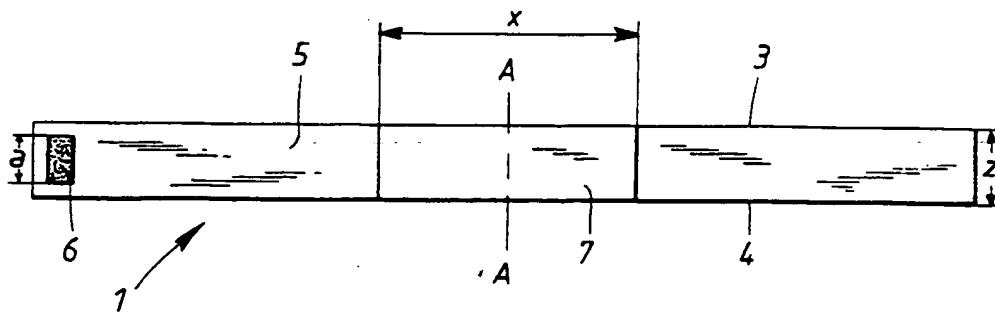
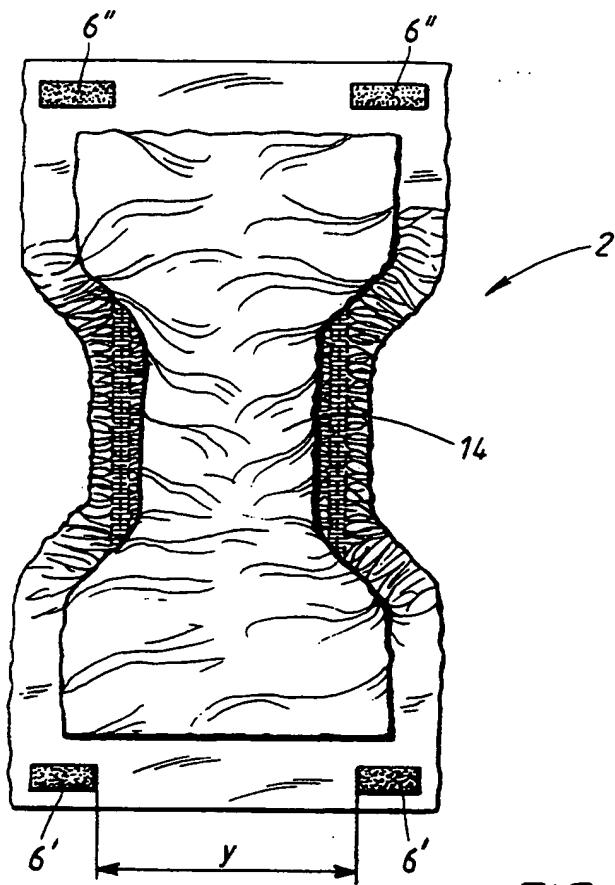


FIG. 2



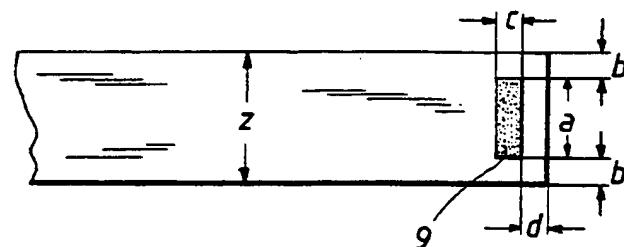


FIG.6A

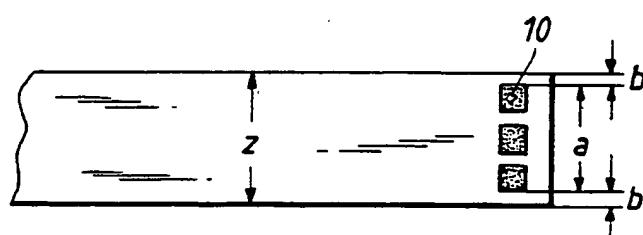


FIG.6B

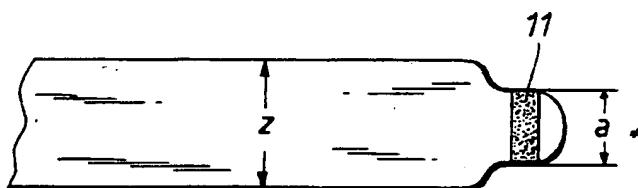


FIG.6C

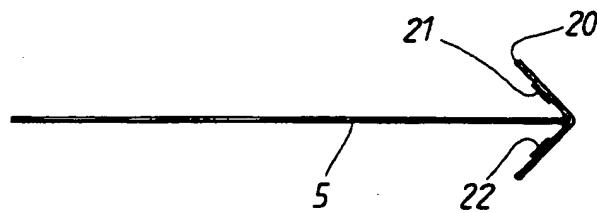


FIG.5

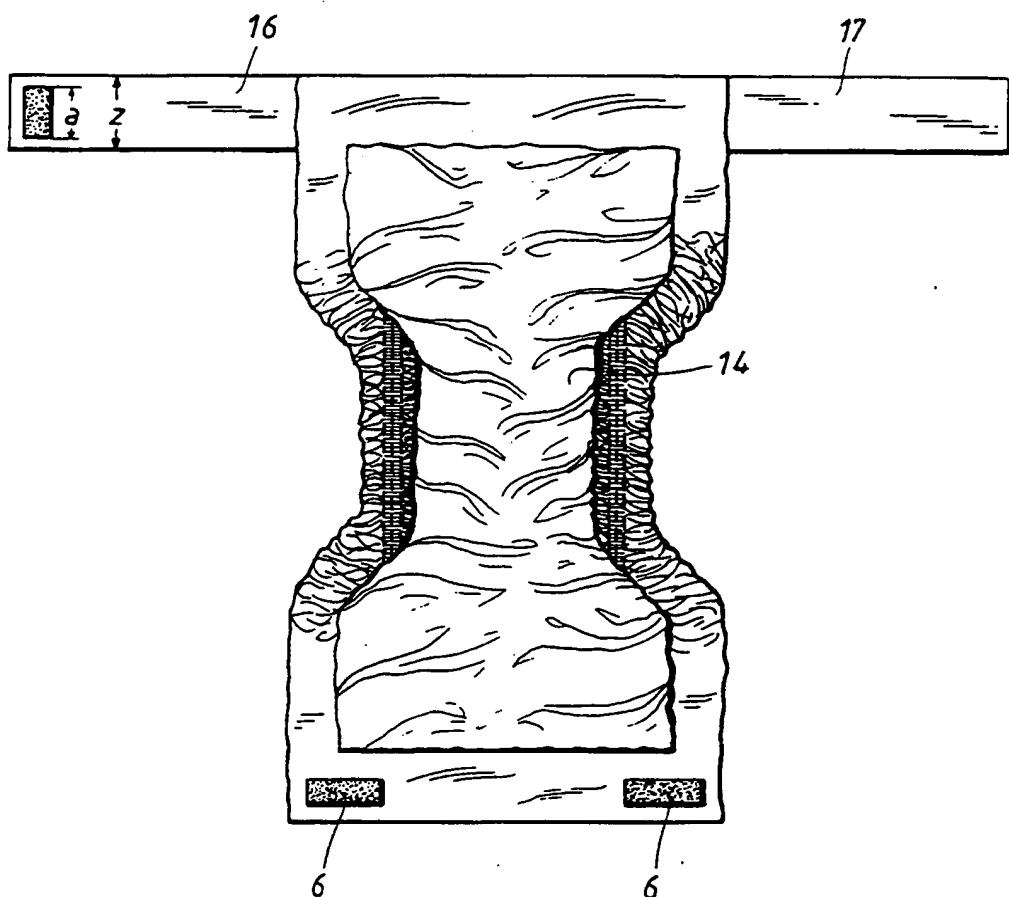


FIG. 7